SECTION 26 0533

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

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LANL MASTER SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the ESM Electrical POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within “stars” during editing.

Specification developed for ML-3 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

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PART 1 GENERAL

1.1 SECTION INCLUDES

A. Conduits and fittings

B. Surface metal raceways

C. Boxes

1.2 LANL PERFORMED WORK

A. None

1.3 SUBMITTALS

A. Submit the following in accordance with Section 01 3300, Submittal Procedures:

1. Catalog Data: Submit catalog data describing surface metal raceway. Include data substantiating that materials comply with specified requirements.

1.4 QUALITY ASSURANCE

A. Comply with the National Electrical Code (NEC) for components and installation.

B. Provide products that are listed and labeled by a Nationally Recognized Testing Laboratory (NRTL) for the application, installation condition, and the environment in which installed.

1.5 RECEIVING, STORING AND PROTECTING

A. Receive, store, and protect, and handle products according to NECA 1 Standard Practices for Good Workmanship in Electrical Construction.

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Alternate products may be accepted; follow Section 01 2500, Substitution Procedures.

2.2 COATINGS

A. Provide products with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic that is suitable for the environment in which the product will be installed and used.

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Edit 2.2 through 2.9 to match Project requirements. Delete materials not applicable to Project.
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2.3 INTERMEDIATE METAL CONDUIT AND FITTINGS

A. Furnish intermediate metal conduit (IMC) that meets the requirements of UL1242 Intermediate Metal Conduit, ANSI C80.6 Intermediate Metal Conduit, and the NEC.

B. For intermediate metal conduit, furnish zinc-plated, threaded, malleable iron fittings and conduit bodies that meet the requirements of UL514B Fittings for Conduit and Outlet Boxes, and ANSI/NEMA FB1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.

2.4 RIGID GALVANIZED STEEL CONDUIT AND FITTINGS

A. Furnish rigid galvanized steel conduit (RGS) that meets the requirements of UL6 Rigid Metal Electrical Conduit, ANSI C80.1 Rigid Steel Conduit, Zinc Coated, and the NEC.

B. For rigid galvanized steel conduit, furnish zinc-plated, threaded, malleable iron fittings and conduit bodies that meet the requirements of UL514B and ANSI/NEMA FB1.

2.5 PLASTIC-COATED STEEL CONDUIT AND FITTINGS

A. Furnish PVC exterior coated, urethane interior coated, galvanized rigid steel conduit or intermediate metal conduit that meets the requirements of NEMA RN 1 PVC Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.

B. Use factory-fabricated elbows.

C. For plastic-coated steel conduit, furnish 40 mil PVC exterior coated, urethane interior coated, zinc-plated, threaded, malleable iron fittings and conduit bodies meeting the requirements of UL514B Fittings for Conduit and Outlet Boxes and NEMA RN 1 PVC Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.

2.6 RIGID NON-METALLIC CONDUIT AND FITTINGS

A. Furnish rigid non-metallic conduit (PVC) that meets the requirements of UL651 Schedule 40 and 80 Rigid PVC Conduit, NEMA TC 2 Electrical Plastic Tubing and Conduit, ANSI C80.3, and the NEC.

B. For rigid non-metallic conduit, furnish non-metallic, solvent-welded socket fittings that meet the requirements of UL514C Non-Metallic Fittings for Conduit and Outlet Boxes, and NEMA TC 3 PVC Fittings for Use with Rigid PVC Conduit and Tubing.

2.7 ELECTRICAL METALLIC TUBING AND FITTINGS

A. Furnish galvanized electrical metallic tubing (EMT) that meets the requirements of UL797 Electrical Metallic Tubing, ANSI C80.3, and the NEC.

B. For EMT, furnish compression or set-screw type fittings that meet the requirements of UL514B Fittings for Conduit and Outlet Boxes, and ANSI/NEMA FB1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies. Furnish insulated throat connectors.

2.8 FLEXIBLE METAL CONDUIT AND FITTINGS

A. Furnish galvanized steel flexible metal conduit that meets the requirements of UL1 Flexible Metal Electrical Conduit and the NEC.

B. For flexible metal conduit, furnish zinc-plated malleable iron fittings that meet the requirements of UL514B Fittings for Conduit and Outlet Boxes, and ANSI/NEMA FB1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies. Furnish insulated throat connectors.

2.9 LIQUID-TIGHT FLEXIBLE METAL CONDUIT AND FITTINGS

A. Furnish liquid-tight flexible metal conduit that meets the requirements of UL360 Liquid-Tight Flexible Steel Conduit, Electrical and the NEC.

B. For liquid-tight flexible metal conduit, furnish zinc-plated malleable iron or zinc-plated steel liquid-tight fittings that meet the requirements of UL514B Fittings for Conduit and Outlet Boxes, and ANSI/NEMA FB1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies. Furnish insulated throat connectors.

2.10 INSULATING BUSHINGS

A. Provide NRTL listed insulating bushings with 105 ºC rated insulation.

B. Manufacturer: O-Z/Gedney, Type IB.

2.11 GROUNDING BUSHINGS

A. Provide NRTL listed, galvanized malleable iron, 150ºC rated insulated throat grounding bushings with lay-in type ground cable lugs.

B. Manufacturer: O-Z/Gedney, Type BLG.

2.12 EXPANSION FITTINGS

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Furnish NRTL listed expansion fittings with hot dipped galvanized malleable iron body, factory installed packing and a bonding jumper.

B. Manufacturer: O-Z/Gedney, Type AX, TX or EXE with Type BJ bonding jumper.

2.13 SEALING FITTINGS

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Furnish zinc-plated, malleable iron sealing fittings that meet the requirements of UL886 Outlet Boxes and Fittings for Use in Hazardous Locations and the NEC.

B. Select each sealing fitting so the cross-sectional area of conductors passing through the seal is not more than 25 percent of the cross-sectional area of a rigid metal conduit of the same trade size unless the fitting is specifically identified for a higher percentage of fill.

C. Provide sealing compound specifically listed for use with the sealing fitting.

D. Manufacturer: Crouse-Hinds Type EYS, EYSX, EYD.

2.14 SMOKE AND FIRE STOP FITTINGS

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Furnish NRTL listed, 3 hour rated smoke and fire stop fittings designed for placement around rigid steel conduit, intermediate metal conduit or electrical metallic tubing passing through core-drilled or cast-in-place holes in concrete floors or walls.

B. Manufacturer: O-Z/Gedney, Type CFS.

2.15 SMOKE AND FIRE SEALANT

A. Provide smoke sealant and fire barrier latex caulk that has intumescent and endothermic properties and has NRTL classified system ratings of up to four hours.

B. Manufacturer: 3M, type CP 25WB+ Caulk.

2.16 CORROSION PROTECTION TAPE

A. Furnish pressure-sensitive, 10 mil thick. PVC based tape for corrosion protection of metal conduit and fittings.

B. Manufacturer: 3M, Type 50.

2.17 RACEWAY MEASURING TAPE

A. Furnish raceway measuring tape with permanently printed measurements in one-foot increments and minimum 1200 lb average breaking strength.

B. Manufacturer: Greenlee “39243”.

2.18 SURFACE METAL RACEWAY

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Furnish surface metal raceway that meets the requirements of UL5 Surface Metal Electrical Raceways and Fittings, and the NEC.

B. Furnish surface metal raceway fabricated from cold rolled galvanized steel with a thickness of not less than 0.040 inches and coated with a baked enamel finish.

C. Furnish fittings required for a complete installation.

D. Manufacturer: Wiremold “500” or “700” series.

2.19 POWER AND COMMUNICATIONS SURFACE METAL RACEWAY

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Furnish power and communications surface metal raceway that meets the requirements of UL5 Surface Metal Electrical Raceways and Fittings, and the NEC.

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Select B, C, or D to match Project requirements. Gray is a standard finish; it should be used in utilitarian spaces, where it will match or accent architectural finishes, or where the raceway will be field painted. Ivory should be used where it will match or accent architectural finishes. Stainless steel should be used only in laboratory spaces where there is the possibility of corrosion.
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B. [Furnish power and communications surface metal raceway fabricated from cold rolled galvanized steel with a thickness of not less than 0.04 inches and coated with a gray baked enamel finish.]

C. [Furnish power and communications surface metal raceway fabricated from cold rolled galvanized steel with a thickness of not less than 0.04 inches and coated with a polyester topcoat over an ivory colored base.]

D. [Furnish power and communications surface metal raceway fabricated from Type 304 stainless steel with a thickness of not less than 0.04 inches.]

E. Raceway shall be of a two piece design with a metal base and a snap on metal cover.

F. Nominal dimensions of the assembled raceway shall be 4-3/4 inches wide by 1-3/4 inches high.

G. Furnish fittings required for a complete installation to include a full-length partition separating the power wiring from the communications cables. [Provide suitable internal fittings to accommodate bending radii for fiber optic cables.]

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Edit H to match Project requirements.
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H. Provide a plastic snap-in plate for each 36 inches of the power and communications surface metal raceway. Each snap-in plate shall include one isolated ground duplex receptacle and one connector faceplate for two RJ11/RJ45 telecommunications connectors.

I. Manufacturer: Wiremold “4000”.

2.20 WIREWAY

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Provide NRTL listed, [general purpose] [oiltight and dust-tight] [raintight] type wireway with covers, elbows, tees, hangers, and fittings required for a complete system.

B. Supply wireway [with manufacturer's standard] [without] [with bottom only] knockouts.

C. [Provide 45 degree angle and tee fittings to accommodate bending radii for fiber optic cables.]

D. Manufacturer: Square D “Square-Duct”.

2.21 OUTLET BOXES

A. For dry locations provide galvanized steel outlet boxes that comply with UL Standard 514-A, ANSI/NEMA OS1, and the NEC as to size and construction.

1. For lighting fixture outlets use 4 inch x 1-1/2 inch deep octagonal boxes with fixture stud attachment as required to support fixtures.

2. For surface outlet boxes in EMT raceway systems, use 4 inch x 2-1/8 inch deep square boxes. Provide deeper boxes or multiple gang boxes as required to fit devices. Provide square surface covers that match the installed device and have not less than two holes for securing the device to the cover.

3. For surface outlet boxes in rigid galvanized steel or IMC raceway systems, use 4-11/16 square, 2-11/16 inch deep cast malleable iron boxes with threaded hubs. Provide multiple gang boxes as required to fit devices. Provide gasketed cast malleable iron or cast copper-free aluminum covers that match the installed device and have not less than two holes for securing the device to the cover.

B. For damp or wet locations provide outlet boxes that comply with UL Standard 498 and 514, ANSI/NEMA FB1, and the NEC as to size and construction.

1. For lighting fixture outlets use 4 inch x 2-1/16 inch deep round cast malleable iron boxes with threaded hubs.

2. For flush or surface wall-mounted outlets, use 4-11/16 square, 2-11/16 inch deep cast malleable iron boxes with threaded hubs. Provide multiple gang boxes as required to fit devices. Provide gasketed cast malleable iron or cast copper-free aluminum covers that match the installed device and have not less than two holes for securing the device to the cover.

2.22 PULL AND JUNCTION BOXES

A. For dry locations provide galvanized sheet steel pull and junction boxes that comply with UL Standard 50 Type 1 and the NEC as to size and construction. Use boxes not less than 4 inches square x 1-1/2 inches deep with screw-secured covers. Provide larger boxes as required by the number and size of conduits and conductors.

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Edit B to match Project requirements.
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B. Surface Mounted Cast Metal Box: NEMA 250, Type [4] [4X] [6]; flat-flanged, surface mounted junction box:

1. Material: [Galvanized cast iron] [Cast aluminum].

2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

C. Provide connection point for equipment grounding conductor in each box.

PART 3 EXECUTION

3.1 EXISTING WORK

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Delete this article when existing construction is not affected.
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A. Remove each exposed abandoned raceway, including abandoned raceways above accessible ceiling finishes, to the point that the building construction covers the raceway. Cut raceway flush with walls and floors, and patch surfaces. Plug, cap, or deal the remaining unused raceways.

B. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.

C. Restore the original fire rating of floors, walls, and ceilings after electrical demolition.

D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.

E. Extend existing raceway and box installations using materials and methods [compatible with existing electrical installations, or] as specified.

F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

3.2 EXAMINATION

A. Examine surfaces to receive raceways and boxes for compliance with installation tolerances and other conditions affecting performance of the raceway system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 GENERAL

A. Install raceways and boxes according to NECA 1 Standard Practices for Good Workmanship in Electrical Construction, the NEC, and requirements in this Section.

B. Raceway termination points and box locations shown on the Drawings are in approximate locations unless dimensioned. Verify locations before rough-in.

C. Raceway routing is shown on the Drawings in approximate locations unless dimensioned. Coordinate routing with structure and with work of other trades. Route as required for a complete wiring system.

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Edit D, E, and F to match the current LANL standard specification numbers. Specifications are being updated in phases during 2003. The first section listed is the current number; the second is the intended future number.

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D. Ground and bond raceways and boxes as required in Section 26 0526 Grounding and Bonding for Electrical Systems..

E. Support raceways and boxes in accordance with the requirements of Section 16070 Hangers, Supports, and Seismic Protection and the NEC.

F. Identify raceways and boxes as required in Section 26 0553, Identification for Electrical Systems.

G. Arrange raceway and boxes to maintain headroom and present neat appearance.

H. Install knockout closures in unused openings in boxes or raceways.

3.4 RACEWAY INSTALLATION

A. Use conduit and fittings according to the NEC and the following:

1. Underground, direct buried: Use rigid non-metallic conduit, plastic-coated rigid steel conduit, tape-wrapped rigid steel conduit, or tape-wrapped intermediate metal conduit for direct buried underground work. Do not use rigid non-metallic conduit where subject to physical damage. Install with 24 inches minimum cover from top of conduit to finished grade or paving.

2. Underground, concrete encased: Use rigid non-metallic conduit, plastic-coated rigid steel conduit, rigid galvanized steel conduit or intermediate metal conduit for concrete encased underground work. Install with 24 inches minimum cover from top of encasement to finished grade or paving.

3. Outdoors - exposed: Use rigid galvanized steel conduit or intermediate metal conduit for exposed outdoor work. EMT may be used where not subject to physical damage and where not exposed to deteriorating agents.

4. Outdoors - concealed: Use rigid galvanized steel conduit or intermediate metal conduit for concealed outdoor work. Do not use bare rigid galvanized steel conduit or intermediate metal conduit in direct contact with earth. EMT may be used where not encased in concrete and where not exposed to deteriorating agents.

5. Indoors - exposed: Use electrical metallic tubing (EMT) for exposed indoor work where not subject to physical damage and not exposed to deteriorating

agents. Use rigid galvanized steel conduit or intermediate metal conduit for exposed indoor work subject to physical damage.

6. Outdoor or indoor corrosive locations (including cooling towers): Use plastic-coated rigid steel conduit for work in corrosive locations.

7. Connection to vibrating equipment (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Use flexible metal conduit for connections to vibrating equipment in dry indoor locations. Use liquidtight flexible metal conduit for connections to vibrating equipment in wet or damp indoor locations, in mechanical rooms, and outdoors. Use a minimum of 18 inches and a maximum of 3 feet length.

8. Connections to luminaires: Use 3/8 inch flexible metal conduit or metal-clad cable in 6 foot maximum lengths for tap conductors to luminaires above suspended ceilings.

B. Use 3/4-inch or larger conduit to enclose multiple conductors larger than 12 AWG.

C. Conceal conduits, unless otherwise indicated on the Drawings, within finished walls, floors and ceilings. Unless otherwise indicated on the Drawings, install concealed conduits with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions.

D. Use conduit hubs to fasten conduit to boxes in damp and wet locations.

E. Install expansion fittings where embedded conduits cross building expansion joints.

F. Install insulating bushings or connectors with an insulated throat to protect conductors or cables at conduit terminations.

G. Install conduits with the following limits of bends and distance between pull points:

1. 50 ft with 3 equivalent 90 degree bends.

2. 100 ft with 2 equivalent 90 degree bends.

3. 150 ft with 1 equivalent 90 degree bend.

4. 200 ft straight run with no bends.

H. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduits dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

I. Stub-Up Connections:

1. Extend conduits through concrete floor for connection to freestanding equipment with an adjustable top or coupling threaded inside for plugs, and set flush with the finished floor or equipment pad.

2. Extend conductors to equipment with rigid steel conduit; flexible metal conduit may be used 6 inches above the floor.

3. Where equipment connections are not made under this Contract, install threaded insert plugs set flush with the floor.

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Edit paragraph J to match Project requirements. Delete if not applicable to Project.
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J. Install conduit sealing fittings according to the manufacturer's written instructions. Locate fittings at suitable, approved, accessible locations and fill them with NRTL-listed conduit sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and elsewhere as indicated:

1. Where conduits enter or leave NEC Class I hazardous locations.

2. Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air-conditioned spaces.

3. Where conduits enter or leave radiological "controlled areas."

4. Where conduits go between areas where air pressure differential must be maintained.

5. Where conduits enter an enclosure protected by a clean agent total flooding fire suppression system.

6. Where otherwise required by the NEC.

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Edit paragraph K to match Project requirements. Delete if not applicable to Project.
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K. Install plastic-coated rigid steel conduit and fittings according to the NEC and manufacturer's instructions. Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

L. Do not use non-metallic conduit (PVC) 90 degree elbows larger than 2 inch trade size; use plastic-coated steel, tape-wrapped rigid steel conduit, or tape-wrapped intermediate metal conduit for 2-1/2 inch trade size and larger 90 degree elbows.

M. Maintain the following minimum clearances between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C):

1. 6” at perpendicular crossings.

2. 12” between parallel runs.

N. Avoid moisture traps in conduit system; provide junction boxes with drain fitting at low points in conduit system.

O. Install corrosion protection tape on metal conduits and fittings in contact with soil using half-lapped wrappings.

P. Install grounding bushings at the following locations:

1. At every entry to enclosures on metallic conduits containing circuits rated 100 amperes and higher.

2. On metallic conduits entering enclosures through concentric, eccentric or oversize knockouts.

3. On metallic conduits that terminate to a metallic enclosure without effective electrical connection such as locknuts or threaded bushings.

Q. Install conduit measuring tape in empty raceways. Leave not less than 12 inches of slack at each end of the tape. Secure each end of tape.

R. Use flat head screws inside surface metal raceways.

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Edit the following article to match Project requirements. Delete if not applicable to Project.
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3.5 CONCRETE ENCASEMENT

A. Concrete-encase underground electrical service and feeder conduits outside the perimeter of the building foundation.

B. Concrete-encase underground electrical branch circuit, communications, and alarm conduits as indicated on the Drawings.

C. Provide not less than 3 inches of concrete coverage on all sides of encased conduits.

D. Use concrete with maximum 1/2 inch coarse aggregate and Type 1 Portland cement (ASTM C 150 Standard Specification for Portland Cement) that has a slump of 6 to 7 inches and acquires a compressive strength of 3000 psi in 28 days. See Section 03300 Cast-in-Place Concrete for concrete mix design and placement requirements.

E. Refer to Section 33 7119 Electrical Underground Ducts and Manholes for concrete-encasement of underground ductbanks for medium-voltage power, telecommunications, and secure communications.

3.6 FIRESTOP INSTALLATION

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Edit specification to match Project requirements. Delete if not applicable to Project.
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A. Install fire and smoke stop fittings at single electrical conduit penetrations through core-drilled openings in fire-rated concrete walls and floors. Install following manufacturer's instructions to restore original fire rating.

B. Install smoke and fire sealant caulk at conduit penetrations through openings in fire rated walls, floors and partitions. Install in accordance with manufacturer's instructions to restore original fire rating.

C. Request inspection of firestop installations by the LANL Authority Having Jurisdiction both before and after installation of firestop materials.

3.7 OUTLET BOX INSTALLATION

A. Install outlet boxes with centers at the following heights unless noted otherwise on the Drawings:

1. Receptacle, telephone and data outlets:

    a. Common Areas (such as conference and break rooms): 18 inches above finished floor.

    b. Offices and Workstations: 7 inches above finished floor.

2. Receptacle, telephone and data outlets at lab benches and counters -- center 44 inches maximum above finished floor; coordinate locations to be above, or completely within, bench and counter backsplashes.

3. Light switches: center 48 inches above finished floor and within 6 inches of door frame.

4. Thermostats: center 48 inches above finished floor.

5. Wall mounted emergency lights: 80 inches above finished floor or 12 inches below the ceiling; whichever is lower.

6. Fire alarm audible/visible alarm devices: center of strobe light 80 inches above finished floor or 6 inches below the ceiling, whichever is lower.

7. Fire alarm pull stations: center 48 inches above finished floor.

B. Coordinate outlet box locations with modular furniture and associated hangers.

C. Where the Drawings show outlets as adjacent, align outlet boxes with each other and group them symmetrically.

D. Orient boxes to accommodate wiring devices oriented as specified in Section 26 2726, Wiring Devices.

E. Install a multi-gang box where more than one device is mounted together. Do not use sectional type boxes.

F. Install box with plaster ring for single or multiple device outlets.

G. Use flush mounted outlet boxes in finished areas.

1. Install flush outlet boxes and fittings in walls and ceilings so that front edge is flush with the finished surface. Repair broken wall or ceiling surfaces so no gaps or open spaces exceed 1/8 inch at the edge of boxes or fittings.

2. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.

3. Do not install flush mounting boxes back-to-back in walls; install with minimum 6 inches separation. Install with minimum 24 inches separation in acoustic rated walls.

4. Secure flush mounting boxes to interior wall and partition studs. Accurately position to allow for surface finish thickness.

5. Install stamped steel bridges to fasten flush mounting outlet box between studs.

6. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

H. Install adjustable steel channel fasteners for hung ceiling outlet box.

I. Do not fasten boxes to ceiling support wires or other piping systems.

J. Support boxes independently of conduit.

K. Install partitions in boxes as follows:

1. Between 277 volt devices

2. Between 277 volt light switches devices and 120 volt devices.

3. Between either 120 volt or 277 volt devices and low voltage control switches.

L. Install a blank cover plate on each outlet box in which no device is installed.

3.8 PULL AND JUNCTION BOX INSTALLATION

A. Install pull and junction boxes as shown on the Drawings and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

B. Install pull and junction boxes in accessible locations. Position boxes so covers can be removed. Place boxes to maintain headroom.

C. Locate pull boxes and junction boxes above accessible ceilings and in unfinished spaces.

3.9 FIELD QUALITY CONTROL

A. Provide final protection and maintain conditions to ensure that coatings and finishes are without damage or deterioration at final inspection.

B. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

C. Repair damage to paint finishes with matching touch-up coating recommended by the manufacturer.

END OF SECTION

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Do not delete the following reference information:
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FOR LANL USE ONLY

This project specification is based on LANL Specification 26 0533 Rev.0, dated January 6, 2006.